

UTIVE. 38

B.

190

190

1875.

Harrison Co., 1908

REYNOLDS'S CON

Book No

From

To

PATENTED JUNE

(Sep. 2, 1908, continued)
 (Turin - Castana)

Cut 10 in 7 ft deep
 in plateau, run
 down hill. E. side
 down hill road
 & on road between
 upper & lower road
 not low

Turned south & located
 at 7:30. at 7:30, -
 went to restaurant
 after lunch. was
 down.

Down Hill Road. Day,
 saw some people to
 come.

He has some material,
 material, & some
 more, & some, etc.

He also has a piece
 of bone, possibly piece
 of carbon of elephant

at 11:30

0 4 3 7 1

5

0 6 3 2

which was taken
from pit (gravel)
on W. side of Maple
river, opposite Castana.
An interesting man
of long experience.

He says it rained
all of 1858, & in
1859 a great lot
of the bluffs slipped.
He says that about
bluffs on way to

Irwin were formed
then. And many
more.

He says no rock
exposures in this
county (Winnona).

Mr. Day piece of
bone in from the
pit in no. 13.

Mr. Day wants

acorns:

Two has Res oak -
Castanets, Red cedar (fine)
Sycamore, walnut
cut leaves birch, Colorado
spruce, white pine (small)
(this trouble with them)
Also raises fine apple
trees.

He says that bur oaks,
now common in valleys
on both sides of the
Maple, were 15 yrs
ago small scrub
patches, as they
tried to turn them
out for pasture.
Mr. Day also raises
fine alfalfa on
the low hills &
considers hill land

with more than
last bottom (and)

Sep. 3, (Th.)

Went out west end
Mon. Bay to look
plan in no. 23
cut 12 is simply
a gutter washing
out the talus.
Like basal slope,
It shows Keweenaw
drift below, with
many lime nodules
in place, & above
it a red joint
clay (see sample)
3 or 4 ft. deep.
Below this yellow
loam

The red loam
follows contour
of ridge.

There is no loam on
the lower slope

Cut 13 is in N side
 of road - 6-8 ft deep

& ordinary - probably
 above -

Notice to fossils

cut 14 is about

10 ft deep &

is similar

Small nodules

above above

Cut 15 is ^{same} just

Pocahontas - Independent

Kanran - blue drift

{ Same & joint clay
 interbedded
 probably 8-10 ft

Coarse gravel

with very oxidized

layer above

This is where

Day got his

bone

4 ft of gravel

exposed

About 6 ft of

blue Kanran exposed

at 5 feet & above

it about 5 or 6 ft

of red joint clay

From

Sphaerium

Pandora

Valvata 3-

Linnæa

Arceuthobium

Planorbis

dilatatus

at 16 a well (or

reverse) has been

long & saw bones

up here

Urosalpinx (fossil)

Sphaerium

Valvata

A big loose plate
(like where I lost

glass) above
16 shows loose in
vertical wall.

Below the wall
& base of loose
Kama is exposed
all along the top.

A very dark
day (with pebbles
is under the
ordinary Kama
& then sand

will about 40 ft

above road

base of loose

bluff about 30

ft. higher

Bluff about 30

or 40 ft

Loose glass

exposed especially

below it is

yellow & white like

and I saw no fossils

cut 17 is yellow
loose, - lower with
rounded nodules -
6-8 ft exposed above
road on the side.

Cut 18 is quite
large, & of usual
type

Duller over along
road E.

Cut 19 - 16 or 17 ft deep
Usual - yellow
Same laminar

Cut 20. Same, but
larger (see life
up south) 8 ft deep
& with rather fine
rounded nodules on

cut 21 - is a fair
yellow loam cut
same

Mr. Geo. Fischer
Castana
Iowa

Mr. A. B. Elliott
Whiting
Iowa

11
Sep. 4 - 1908 (Fri)

Went E. & then to Logan.

cut 20 -
corp's pit.

cut 91 - This is
cutting down of
normal type - 15 ft
deep, on E. side,
with rounded
nodules (few) below
& small nodular
layer above.

cut 92 - A low cut
(6 ft) with coarse
loam above &
yellow
loam below -
few rounded nodules.

cut 93 is across

short steep ridge
is about 10 ft. deep.
Loess & nodules
as before, but
noticed no fossils.

cut 94-

Irregular, slumped
7 ft deep
Ordinary loess
& nodules

cut 95 - Slumped

more or less.
6-7 ft deep
across ridge
Loess & nodules
as before.
Fragments of
shells.

cut 96 = 1 in Logan
cut 97 = 2 in 4

W

Photo 11/8/2 -

Looking S. along road
in middle of sec. 19

Top 79 - R. 42

S. E. of Logan.

Shows large soft
mudflats with no
underbank. Snow
would be swept right
through. Also dry well.

cut 98. At top of
hill - highest pt. on
W. Logan.

6 ft exposure & about
4 ft is brownish sand.

This was formerly
gravel.

few nodules.

A few rounded
nodules below &
fragments of shells.

8. W. of Logan,
E. of the Boyer, the
hills are not so
high, & the surface
is a gentle
Kansan.

Cut 99 - 100 ft.
(at cut) in red
wall, sloping
down to SE
It is about 12
ft. deep, the
S. side being better
exposed. In where I
made section it

shows 4 ft. above
of reddish
clay like that
in cut 98.

There are no nodules
or shells, & which
it meets 2nd layer
below, there are

oxidized trunks
then even 5 ft. of
a mottled blue &
yellow loam, with
some iron tubes (&
then always blue
spots or streaks)
(See sample)



In no 2 there
are streaks of
nodules, of ² or
more nearly horizontal
(were there fossils
when they slipped?)
Nodules are most
plentiful in 2.

Fossils are abundant
both samples of 1 at
3 ft from top
of (2) at 3 ft below
top of layer no 2)
of (3) at 1 ft below
top of layer 3.

The fossils are
finely imbedded
in both (2) & (3).
No. 3 is a blue
lens, with many
& rather large
root tubes.

Saw many root tubes
(no samples) about
roots of tree oak

(dead) & evidently
but recently formed.
The fossils are all frail, but
quite well preserved
This is on top of one
of highest points of
ridge facing the
Proyer valley.

Cut 100 is on slope
to west (down) &
shows the two
upper layers.
It is about 6 ft
deep & quite long.

Cut 101 - a long
cut along gutter
up next hill.
Similar

Cut 102 shows upland
rocks. Did not examine
it, but deep

Cut 103 is a
long 6-10 ft deep
but it is really
very shallow.

What shows in
yellow loam, some
light, streaks with
mud, & with few
rounded nodules.
Also fossils:

It is the yellow
loam of bluffs.

At 104 - just before
ascent up hill
a heavy joint
clay (yellowish)
(see sample) shows
for 6 ft or
more. It is a
loam.

The slope is gentle
not much of a
hill but the
cut is in rather

4 cuts off side of
ridge along which
road runs.
Loam like material
on top.

Northward the valley
narrows &
all the terraces &
etc. is Kansan.
Rougher Kansan
appears S, S.W.,
& W., - the bluffs
approaching.

Cut 105 is on a
long gentle slope,
considerably above
104.

It shows about
7 ft. of compact
heavy fossiliferous
loam. Fossils
green & yellow.
Some nodules round

below & small
in layer 3 ft
thick above.

Cut 106



This even like
that in 105 if
anything a
little softer
with rounded
nodules, fossils,
& nodular
layers above

At 107 a low

band (4 ft.)

shows blue loam
with few tubers
(small) & back of
it a redder
loam/mud with
blue below &
redder towards
top.

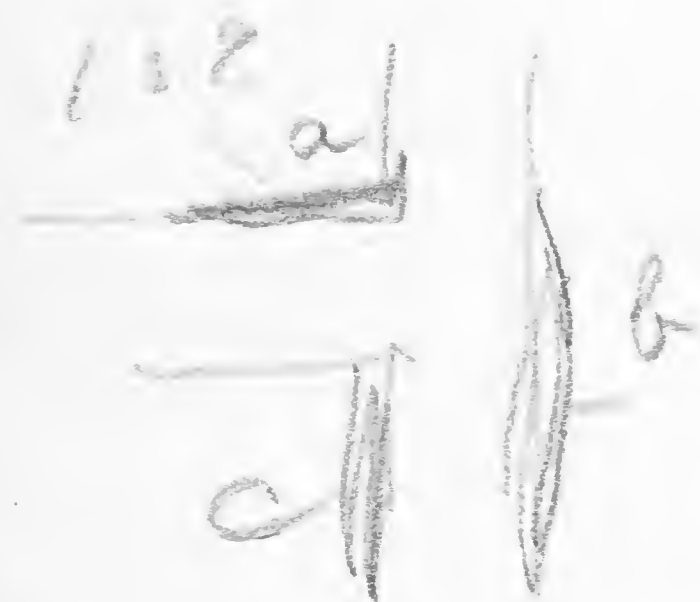
On N. side road -
Blue loam shows
in road -

Few tubers

W & NW. of Magnolia
There is a great
valley (like Sugar
hollow) with
much forest.

Cut 108 yellow
 open on hill
 Did not stop

Cut 109



This shows much
 as A 99

4 ft Reddish
 clay w 4 ft

2 ft

Blue loam
 Large boulders

The blue loam has
 lutes, etc. The
 upper is yellow

cut 110 also
 shows blue loam
 Did not stop
 on slope up to S.

Several good cuts
 were seen on way to
 Calhoun,
 (see later)

Sep. 5, 1958, (Sat)

Made meteorological
obs. at Mo. Valley.
Linn. Bluffs & Harold
Tracy, Nebr.

Early (x 5) the sky
was cloudy, but by
6:30 it cleared, & was
breezy & hazy during
forenoon.

The wind felt damp.
When a barometer was set
out pan 1 was in
shade. Pan 2 was in shade
& almost calm. Pan
3 in shade but
exposed to wind.

Pan 4 (wind) recorded
heavy & Pan 5 (alt.)
in sun & breeze.

The new pan 4 was
almost calm.

There was a heavy
dew this AM.

These are old stand-bys
in very dry places:

<i>Amorpha canescens</i>	- very com.
<i>Dalea</i> (feather)	" "
<i>Liatris punctata</i>	- common
<i>Ceanothus ovatus</i>	"
<i>Bouteloua racemosa</i>	- v. "
<i>Salix nemoralis</i> <i>Golden rod</i> (reclining)	" "
<i>Andropogon furcatus</i>	" "
<i>Petalostemon candidus</i>	" "
" <i>violaceus</i>	" "
<i>Schizoneurum</i>	- com. "
<i>Verbena stricta</i>	" "
<i>Limon. sulcatum</i>	quite "
<i>Lygodesmia juncea</i>	" "
<i>Gerardia aspera</i>	not very
<i>Houstonia angustifolia</i>	rather "
<i>Aster sericeus</i>	" "
<i>Helianthus rigidus</i>	quite "
<i>Solidago rigida</i>	" "
<i>Salix humilis</i> (shrub)	more frequent in
<i>Anemone cylindrica</i>	- rather "

There has been almost
no breeze at no. 2

during forenoon &
at 1 & 3 it was much
reduced by rain.

At 4 o'clock both
sun & wind worked in
to pan 2 pretty well.
The day has been
remarkably hot &
with not strong wind.
The leaves in Snyder's
hollow are scarcely
disturbed by breezes.
Water 4 (also & rain)
were calm all day.
Flowers are wilting
both on bare slopes
& in woods (esp.
near border).

789.65 at 4.38 PM

9/5¹⁰⁶

Photo 13 & 14 - Deep water
near 2

Photo 15-16 - Heaver
view of (cant grow)
covering in same.

Photo 17-18 - Ashland

" 19-20 - (Bordy)

showing samach.

Photo 1 & 2 - Looking

S. from near pan 3.

Some Paper's cottonwood
& willows on top of
ridge.

Photo 3 & 4 - Looking

N from Sta. 3 to

Sta. 1.

(see ridge beyond
Anyden bottom)

Photo 5 & 6

Looking E of S.

across station

4 dot near.

4 dot near

center of field or

ridge in foreground.

4 (now) is just in front
of where to right
of black dot (cow) &
shadow beyond it.

Photo 7 & 8 - Looking

S from station 1

towards tip of ridge

on which pan 3 is

found.

Photo 9 & 10 - Looking

across bottom into

woods - toward station

2.

Between two ash

trees is white spot.

= Cup or abn. with

Pickel is in line &

pan still deeper in

Left Mo. Valley
at 10⁵⁰ P.M.

Council Bluffs
Sep. 6-1904

Set up apparatus
at 10²⁰ -

Station as before

1 - 140 ft above valley

on dry ridge

between 9 + 9 acres.

2 - On top of same ridge

3 - 6 ft below top in

tumble

4 - About 20² ft below

top, in deep woods

5 - 235 ft. point

6 - Over ridge (6 ft
below top) in

recently tumbled

rocks.

Day pleasant,

cool M.W. breeze all

day, but no

strong. In shelter

plants very warm.

3 & 4 were very dry looking.

Ridge between Station
2 + 5 shows

fine beds:

Rudomica etc.

Rhus glabra

List:

Rhus glabra

Verbena stricta

Petalostemum ~~strictum~~ *strictum*

Melilotus alba

Panicum capillare

Bouletia racemosa

Ambrosia leptophylla

Urtica dioica

Symphoricarpos

Schedonarda

Veronica novboracensis

Quercus macrocarpa

Dysodia

Fuchsia ~~brunneola~~ *brunneola*

Andropogon furcatus

Few *Holidys* ^{memorabilis} *scaberrima*

Few *Mimulus* *scaberrimus*

Low *Vicia* *purulenta*

Few *Salix* *(feakling)*

Few *Galium* *eupatorium*

Cruciferae
fruticosa

Few *Ornithoglossum*

Few *Sisyrinchium* (purple)

Commersonia umbellata

Euphorbia - ^{perennial} *viridis*

not

common

Cenchrus trachystachyus

Woods, E. of Stillman 2 + 5

~~monarda scabra~~
~~Quercus macrocarpa~~
~~Rhus glabra~~
~~Syrphocanthus~~
~~Veronica novboracensis~~
~~Eupatorium ageratum~~
~~not by road~~
~~coarse red soil (wood)~~
~~Carya (not pale)~~
~~Chenopodium hybridum~~
~~Mentha canadensis~~
~~Rubus mucronatus~~
~~Xanthoxylum americanum~~
~~Smilax herbacea~~
~~Ostrya asperum~~
~~Croton mollis~~
~~Psidium~~
~~Amelanchier canadensis~~
~~Fraxinus~~
~~acer ash~~
~~Ulmus fulva~~
~~Ulmus americana~~
~~Juglans nigra~~
~~Prunus verticillata~~

~~Eupatorium ageratum~~
~~Lonicera canadensis~~
~~Geranium (big broad leaves)~~
~~Muhlenbergia (stems)~~
~~Aster (conduplicate?)~~
~~Robinia pseudoacacia~~
~~Small (not the smaller)~~
~~Pilea pumila~~
~~Gymnocladus dioica~~
~~Valeriana~~
~~Eupatorium purpureum~~
~~Smilax, Elymus~~
~~Vicia cucullata~~

These woods also show
 great undergrowth,
 especially toward the
 edge.

Half way between
station 1 & 2 is
a big washed
out hole next to
S. beach -
about 6x10 ft
and 9 ft deep,
with an off-shoot
channel leading
down obliquely to
S.

Most of bottom is
flat.

Schubounarden
is the common
bunch grass on
the bare slopes
of which birds
are scarce.

This has been a fine
day; with a gentle
breeze (sometimes reduced
to mere

puffs & gusts) from
the rear.

The sun was quite
warm, & the sky
perfectly clear -
I saw no sign of a
cloud all day.
It was a little
hazy in the afternoon &
also in the evening,
the latter from
smoke.

Sep. 7 - 1908 (Mon)

Commenced with cut 48.
on low cut along
street. It is only a
lower cut of 50, & includes
48, 49 & 50 are sections
of the same part of
ridge; - practically one.
The lower is yellow,
with various nodules
(bees) below. It
shows clear lamination
following contour of
slope, - in weathered
planes.

Took a few shells.

Cut 50 is remnant of
old ridge. The base
of bluff has an
altitude of 85 ft.
(above track) &
the bank is 33
ft. high.

The upper 3 ft is

lobular, with a few small nodules.

The remainder is compact yellow limestone with shells chiefly in upper part (here as in very thick deposits generally the lower part not fossiliferous (usually within 10 to 15 ft. from fossils).)

There are rounded nodules, - here rather small, - scattered all through.

The lower part shows much local (i.e. locally exhibited) lamination of the normal type.

Vertical cleavage is also distinct here, - water & gravity, aided by roots.

Nodules occasionally notched, & horizontal (or oblique) streaks of same occur.



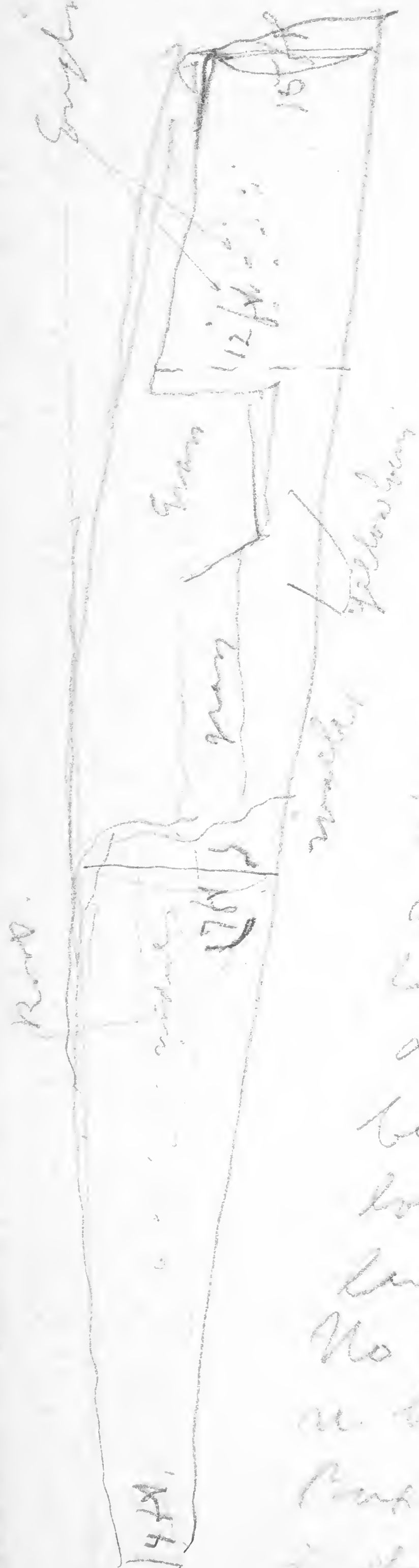
Cut 50 - E. side

✓✓

Photos 21022 - looking NW at cut 50

4
English Sparrows
holes

cut 51.



This cut shows in its N. half a layer of yellowish soil 2 to 3 ft deep, with a brown shade in lower part.

Below this is the small nodular layer 3-4 ft deep, shading below into loam with fewer, larger nodules. No fossils in N. half.

One shell cut 2 in in diam. appear 6 ft below top.

Many English Sparrow holes in upper part of S. end.

Loam is just as in cut 50. Fossils few, scattered & chiefly in lower (S.) half of S. end.

The S. side of cut 51 is same.

In S. 1/2 upper (nodular) part abundant.

The small cut opposite 51. (call it 52) is only about 6 ft high at S. end ^{runs out} & at N. end.

It shows nodular layer at top & I could see no fossils.

Cut 52 is part way down slope & seems to be 8-10 ft deep - yellow loam (S.) not nodular.

541 overgrown - even 8 ft.  about 18 ft. high

Cut 53 - Looking S.

In clear place this shows nodular layers at base; nodular layer very distinct at base

Nodular almost all the way from lower part

Now no shells. - yellow, black top (nodular layer)
 took sample at x - 2 1/2 ft. below top (nodular layer)
 + at xx - 9 ft. " " (yellow loam)

Cut 54 Remnant of nodular layer



Spindle "ally" on S side

Flat top with low nodular

This is much like some on land 5-3

~~Took sample~~

Cut 55 - on W. side, was about 18 ft. deep, but is now terraced & covered with grass

Cut 56 is w. side
of cut 53.



Cut 56 shows *Sparganwaler*
nodules layer.
Loam is soft, adhesion
✓ shows lamination
parallel with surface.
Fossils are scattered
through lower part
(within reach.)
Nodules are very
few & scattered.
Took sample of
fossils. Loam at
about 12 ft. from top
This cut is about
100 ft. long & drops
to south about
15 ft. (base along
road.)

57, 58 & 59 show yellow
loam. are back
in yards.

60 & 61 are cuts
made by grading lots
& are very variable
in depth, but
all along the ordinary
yellow loam is visible.

Cut 62 is the S.W.,
and is only about 10
ft deep.

It shows yellow loam
with distinct laminations
scattered nodules, &
I saw no fossils.

From base of 63 to
top is 85 ft, - in S.E.
75 ft. from top to shelf
on S. side.

63 shows compact
hard loam below -
with distinct lamination
on much of it.
It is all yellow, but
some rim tubs near
base. Very few
lime nodules.
Few shells, probably
mostly from above, as
I made no more
at base.

Cuts 64 and 65 are opposite
side of same excavation



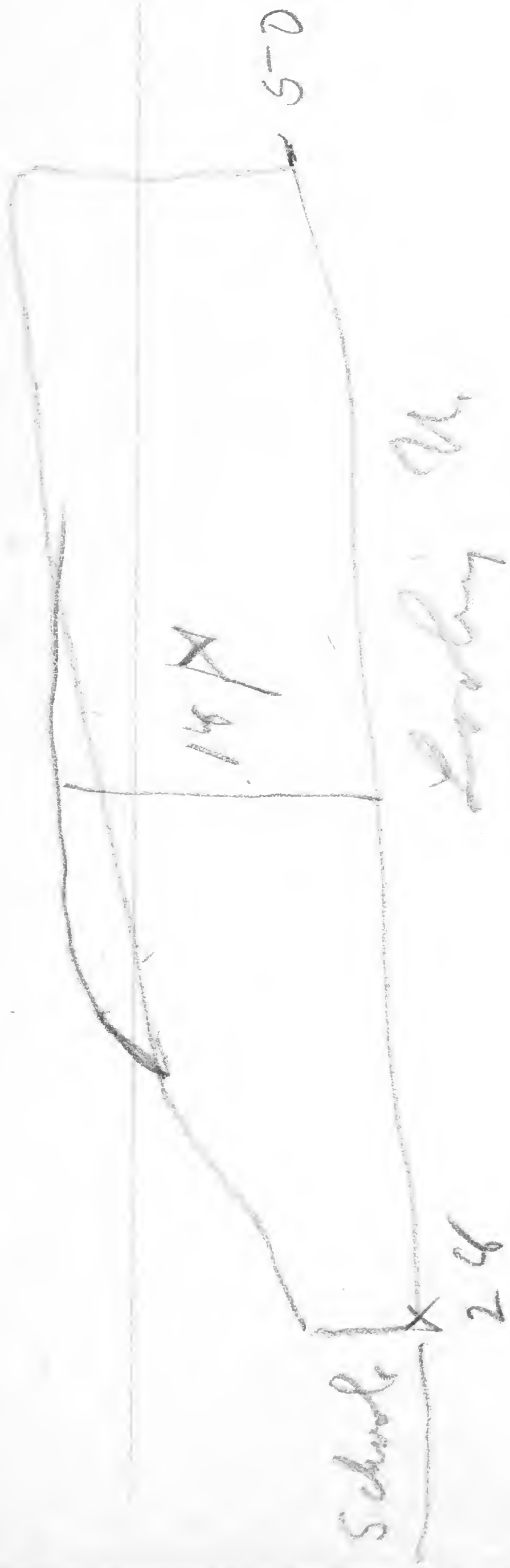
in line and 66

54

Line cut 66

55

cut 67



all from W side

a Sample of blue loam
1 1/2 ft from top of
loam.

b Sample of red loam
1 1/2 ft. above
blue loam.

c Sample of nodular
loam - 2 ft. from top.
Occasional pebbles on
blue loam on E side
road.

b & c are undoubtedly
like blue loam.

at 120 ft point
a soft, friable = d
yellow loam appears
below nodular loam
& blue. Both have
circular voids. This
yellow loam is here
probably 4 ft thick.
Nodular loam above
distinct

Top sample of d 5 ft from top of sand

Photos

13 & 14

Looking at S. end
of cut 115 on
W. side.

X 115



Enlarged view of S. end cut

Callison

Found a few fossils
in nodular layer at
130 ft. point - they
seem to be nodules
into yellow brown
clay, as shown
by fragments.

Found fresh shells &
a stone with a
thin white wood
near top of hill
above and

Top of hill road
200 ft.

In gorges along river
saw wild plum,
burr oak

Am. elm
Red "
Basswood
Black ash

Box Elder

Black cherry

Crataegus punctata

Green ash

Juniper virginica

Rhus glabra

" radiata (Lycium)

Rubus occidentalis

Symphoricarpos

Betula nana

Blackberry

Cornus paniculata

~~Rhus glabra~~

Astragalus

Vitis vulpina

Rubus cuneifolius

Coffea tree

Menispermum

Elder

Celtis occidentalis

Chokeberry
caryocarpus

Sorbus domestica

Drumstick

Dropwort
Ampelopsis

Cut 114 on
both sides road

Barometer reads
225 ft

It is 9 ft deep, on
gentle slope N. (up)
near highest pt.

on this ridge

See sample of loam
taken 6 ft below
top. Loam is all
yellow. Saw

no nodules.

Fossils ^{very} few, scattered

Lamination shows
in lower part.

Helianthus in blue
lower loam.

Greenish for
yellow loam.

The lower part
has blue streaks
& nodules & more
spots, & is more
compact (see

sample taken at
7 ft from top)

sample of yellow loam
taken at 5 1/2 ft.

from top

The west dunes all
thin. The E. side
is overgrown

yellow sample

yellow sample



113

Cut 1 runs
down hill to N.
at base of baron.
reads 180. at
top 285.

Cut runs nearly
all way down
from top of hill
the cut shows
blue loess & up
the hill, following
contour, except
at base where
lamination runs
up.

Blue is very distinctly
laminated. It has
layers & numerous
tubes below, but
upwards they become
fewer. It runs
above into yellow
loess of which
7 ft. shows now

top on E. side.

Took my sample
from W. side

a $\frac{1}{4}$ of the way down
on E. side - 9 ft.
of yellow loess, but
it becomes heavy &
streaked with red &
blue below.

On E. side there
seems to be a
change of the
yellow loess to
very heavy streaked
transition loess.

No nodular layer
appears here, though
upper loess is lobular.
Sample uppermost loess
2 ft. from top & near
top of hill.

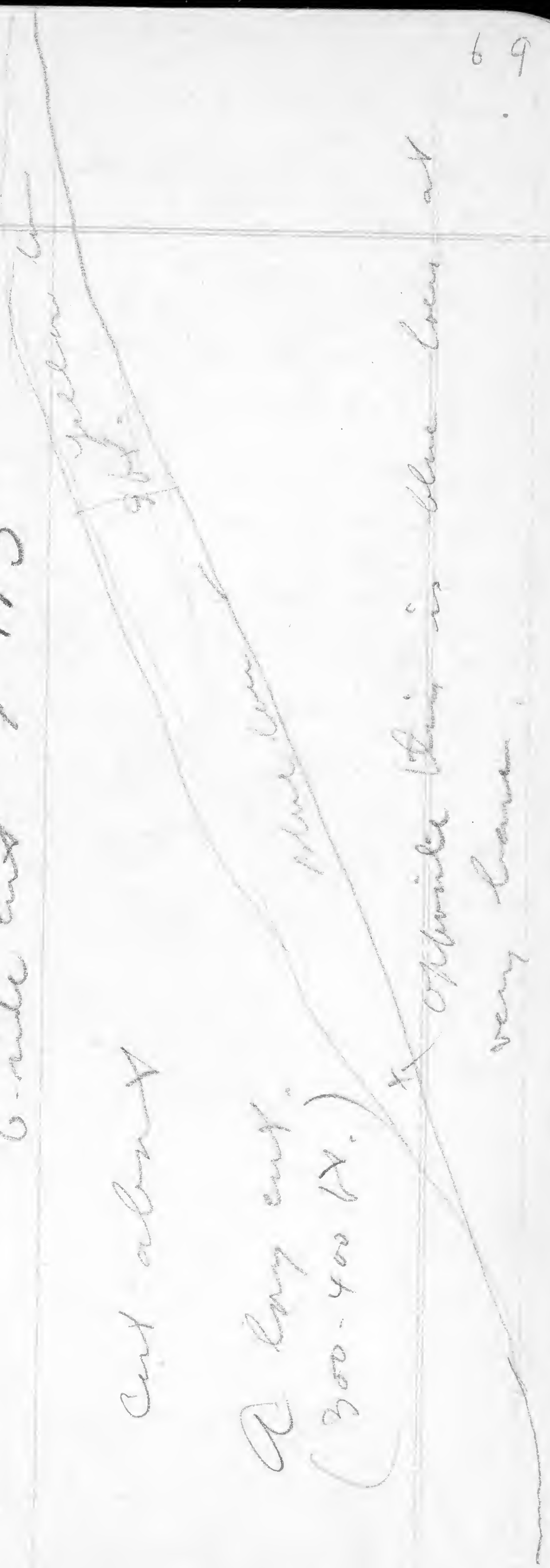
Sample of blue loess
near foot of hill
5 ft. deep

Sample of Hamilton
 from top of bank
 rich & -
 from top of bank
 somewhat, almost same
 from tubes from blue
 level near foot
 of hill.
 Drills from blue
 & Hamilton level
 from iron tube on
 road (see spec.)
 from shells in
 road near cut 3

Cut about 113

Cut about

A long cut.
 (300-400 ft.)



112

Cut 1 is a
small cut 5
ft. deep, & showing
blue loam with
a little transition
stuff & then about
5 ft. of lobular loam
with nodules.
Iron tubes not
rare.

Remarks:

Iron tubes again
were bluish
discolored.

Only a short distance
from the H.

/ 113

This cut is a
low ridge between
two waterways.

111

Cut 2 is at corner
& extends down to
level of ^{small} bridge across
creek (a water course).
It is blue loam with
many tubes & some
nodules & fossils.
Two iron tubes on
fresh roots.

Blue loam extends
up to brown soil
(1-2 ft.)

4 1/2 ft. blue loam
exposed.

On top of section
well to E. the
surface material
(brownish) is from
the road.

cut 110 on
N. side sloping
up from creek
bottom level of
H₁, & it rises
over low ridge
In deepest places
12-15 ft deep
Where loose with
many iron tubes
esp. below, &
some nodules
(like in 111)
& fossils all
through.

Thin laminae
Only top 2-3 ft of yellow
nodules loose

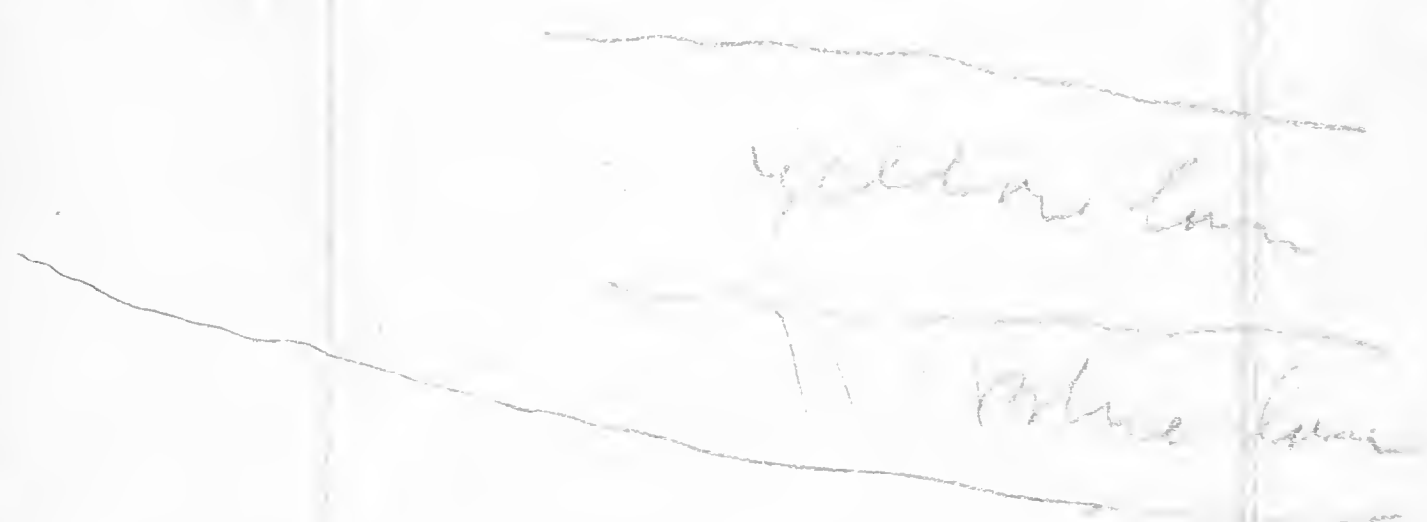
Roots now
running through

See photos 21 & 22
looking W.

Photos 23 & 24, looking
N. up cut 110

Lamination very distinct

✓✓ Photos 25 & 26
Looking at N. part
of cut 109



Took sample of
yellow loam 4 ft from
top.
Blue loam 1 ft
from bottom

109 is on better
side

108 is better

Cut 116 - 12 - 15 ft

cut on N. side

7 ft on S. side.

Blue loam (with
more "transmission" stuff
fossils.

This is still well
up near top

Reading 290

Runs to foot of
hill. Washer

cut on N. side

Shows laminations
clearly.

To right of road
beyond foot of cut
116 in field I

saw ridges with
cut steps. They are
here exposed to
S.W.

Cut 117

A small cut (2 ft
deep) beyond school

on little ridge

Shows yellow loam

with few nodules

+ rubber nodules
layers

Saw no fossils but

didn't look

very carefully

Cut 118 - on slope

N. (down) is

similar.

Saw fragments
of shells.

Cut 119 - Similar

5 ft deep

Yellow light loam

Few red nodules

Upper nodules large

fragments of
shells

120 A small
cut 5-6 ft. on
level of creek
bottom - shows
blue loam -
not with tubes
but with horizontal
strata (granite)

(Bottom near
115)

a wide property
S. above mouth
of Allen cr valley
shows cat. slips
& yellow loam

121 & 122 are big
exposures of yellow
loam due to
slides

Tubes

123 is a cut
where road comes
over ridge.
Yellow loam.

Topography.

The region N. of
Calhoun & to Maguiki
is rough Kanran
with timber in
the pockets.
From ~~Maguiki~~ Maguiki
along Allen
creek to bluffs
it is very rough
except for the
pretty valley, &
heavily timbered
on the slopes,
especially on
the south side.
On the N. side
near outlet of

valley to the river
bottom a

ridge points S.
+ shows cut steps,
+ yellow loess.

The wind sweeps
up this valley +
forms the yellow
cut step ridges +
the yellow loess
at cut 117, 118.

Sep. 9-1908 (Wed.)

Spent night at Little
Sioux at Bonney Hotel
("Hot-lar").

Went S. to Wallace pit -
cent no. 124.

Barometer sits in above
flat.

Sand (coarse) up to 20 ft.
(Lower part ^{calm} shrunken)

Then mixed sand & yellow
mud (water stratified) just
like present Kansan
bars - for about 15 ft. H.

Took sample at 25 ft.

(also a sack of sand
from about same
place.)

These layers of mud
& sand alternate
in the same present
bars.

an irregular layer
of very large line nodules
(6-12 in. ^{long} & more) appears
above this, at 35 ft.
This is probably lower
level of Kansan.)

Other large nodules
appear above.)

Pebbles (possibly
Kansan) appear at
45 ft. & then come
several feet (6-8 ft. or more)
of a heavy, much more
samples taken at
48 ft. -

Upon this level appears
in hill.

Other exposures show
further down (5 ft. or more)
in an ancient road bed.

At 25, the mud, fine
sand, coarse sand &
very small pebbles
alternate.

The gravel parts
contain some
concretion, some
concretion, some
lime concretion (very
white & soft) & I
saw scales of what
appeared to be a Union.

This part, has too
much yellow clay
mud to be good for
pit.

(Bar. on flat 29.1 -

On N. slope (or into)
this cut shows a
talus, then about
6 ft. of reddish joint
clay, with lime streaks
& lines, and at
about ⁴⁰ 45 ft a distinct
layer of large nodules.
Above this the

material runs into
yellow loam of
ordinary soft light
type; - fossilifer
(see fossils)

I could not examine
connecting line, -
dunfries was washed
a little.

Loess evidently many
feet. Shows much
as now around.

The well at R. B. Waller
house (on hill)
is 85 ft. deep & found
& pipe about 15 ft
more - & found no
sand or gravel.
Waller well is 60⁶⁵ 70
ft above flat.

Cut 125 runs
all the way down
from Wallace's house
to gate near bottom
& shows 15-18 ft.
of fine yellow soft
laminated loess -
no nodules, &
fossils scattered
few, - the loess
being typical Missi-
sippi loess.

Mr. Wallace says
he had gravel pit
opened - about 60 yds
S. of spring - & it shows
about 16-18 ft. of gravel
Some of this is streaked
with black. He struck
water just a few ft. below
level. ^{He says} now
the sand mixed is only
about 1 ft.
He found no bones with

This pit is on corner
of two fields - the
higher being 5'.
It is not in best
shape.

From living shell
in woods near 125
also seen
& tubercles of
Amphioxus (small)

Wallace says the
gravel runs up
in hill & that
the point of his
well was driven
into it.

It is about 95
ft deep.

Cut 126 runs
only 5 ft above
level of flat on
S side (in gutter)
& N side is about
10 ft above flat.
It shows about
12 ft of fine gravels
Kansan hill a S ridge
& about 7 or 8 in
N side. No loess here.
This is a basal
terrace. Loess, hills
rise back of it.

Murray hill at fork
of road
It shows a loess
terrace ridge extending
in a curve to S.E.
& running from it
to fork of road there
is a Kansan drift
ridge, of pure clay
with much fine

gravel.

- ✓✓ Photos 27 & 28 show
Murray hill viewed
N of E. from lower
part of gravel ridge.
- ✓ Photos 29 & 30, looking
S.E. show N side of
ridge S. of Murray,
with each valley
marked by a broad
groove.
- ✓ Photos 1 & 2 show
Kansan ridge (Murray
hill to right)
from ridge S. of
road, which is
also Kansan.
Photos 3 & 4 - looking N.E.
at Murray hill from
gravel ridge S. of road.

all wild under
all under

Plants on Kanawha
marsh, near N.E. of
Little River

Scrophularia caerulea

Yucca

Solidago rigida

" (*caerulea*)

Euphorbia corollata

(*Cuscuta tuberosa* ? (L.)

Proserpinaca

Aster blanchetii

Xanthoxylum (S. Hill)

Chrysopsis

Verbena stricta

Helianthus scaberrimus

Liatris punctata

Sesuvium

Petalostemum canadense

Symphoricarpos

Rumex

Aster novae-angliae

" *occidentalis*

Aristida purpurea

Andropogon furcatus

(*Sorghastrum nutans*)

Origanum Group -

Helianthus annuus

Erigeron canadensis

Panicum capillare

Euphorbia (herb.)

" *prostrata*
ambigua pallidostachya

" *arabum*

Onosmodium (?)

Polygonum *rumex* ?

Phlox glabra

Campanula

Chenopodium album

Panicum (long)

Kuhnia

Sedum *virgatum*

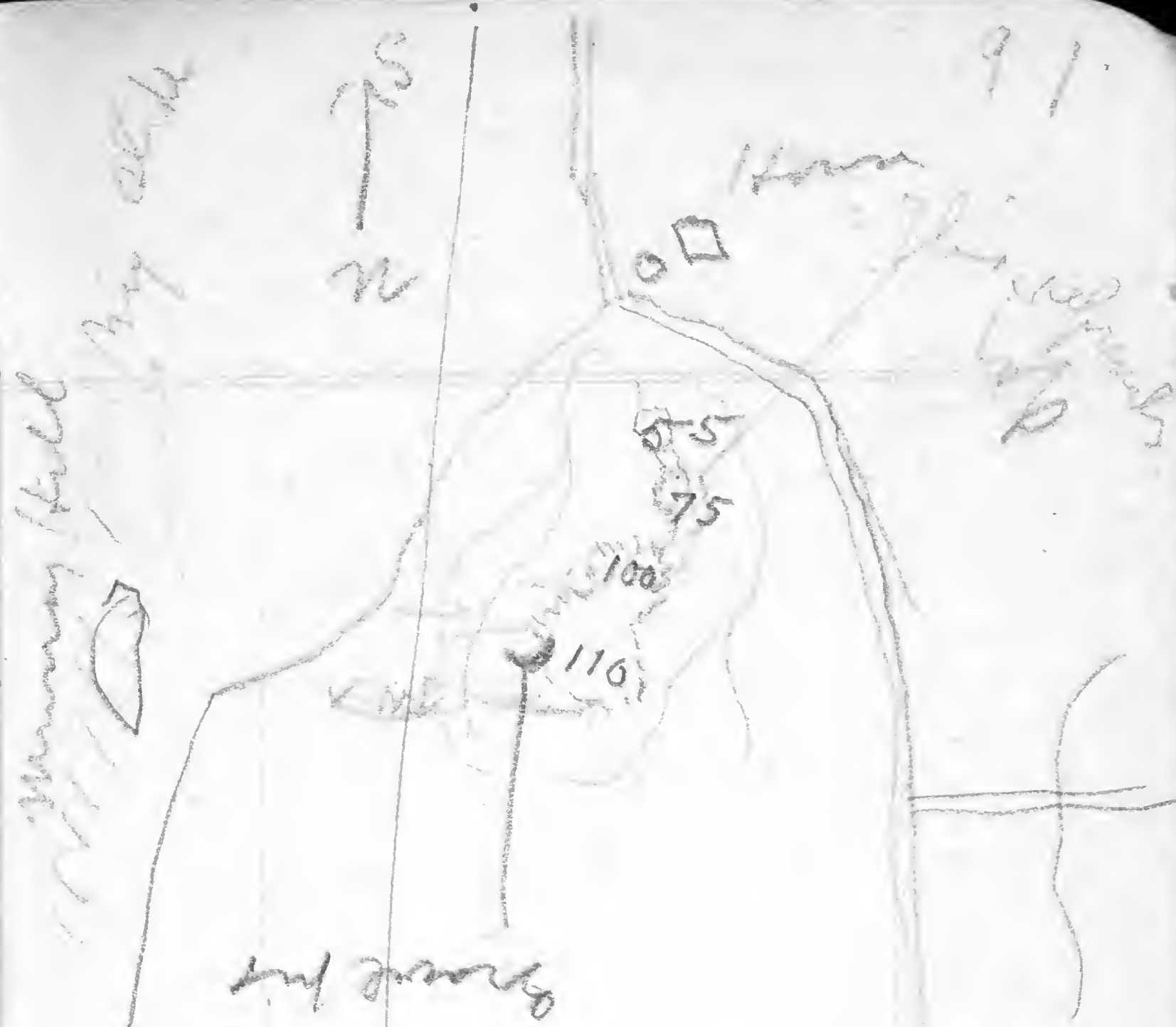
See accurate list

The gravelly drift
is shown in ridge
S. of road to a
height of about
65 ft. above road,
which is here on a
little spall above
bottom (probably
25 ft.

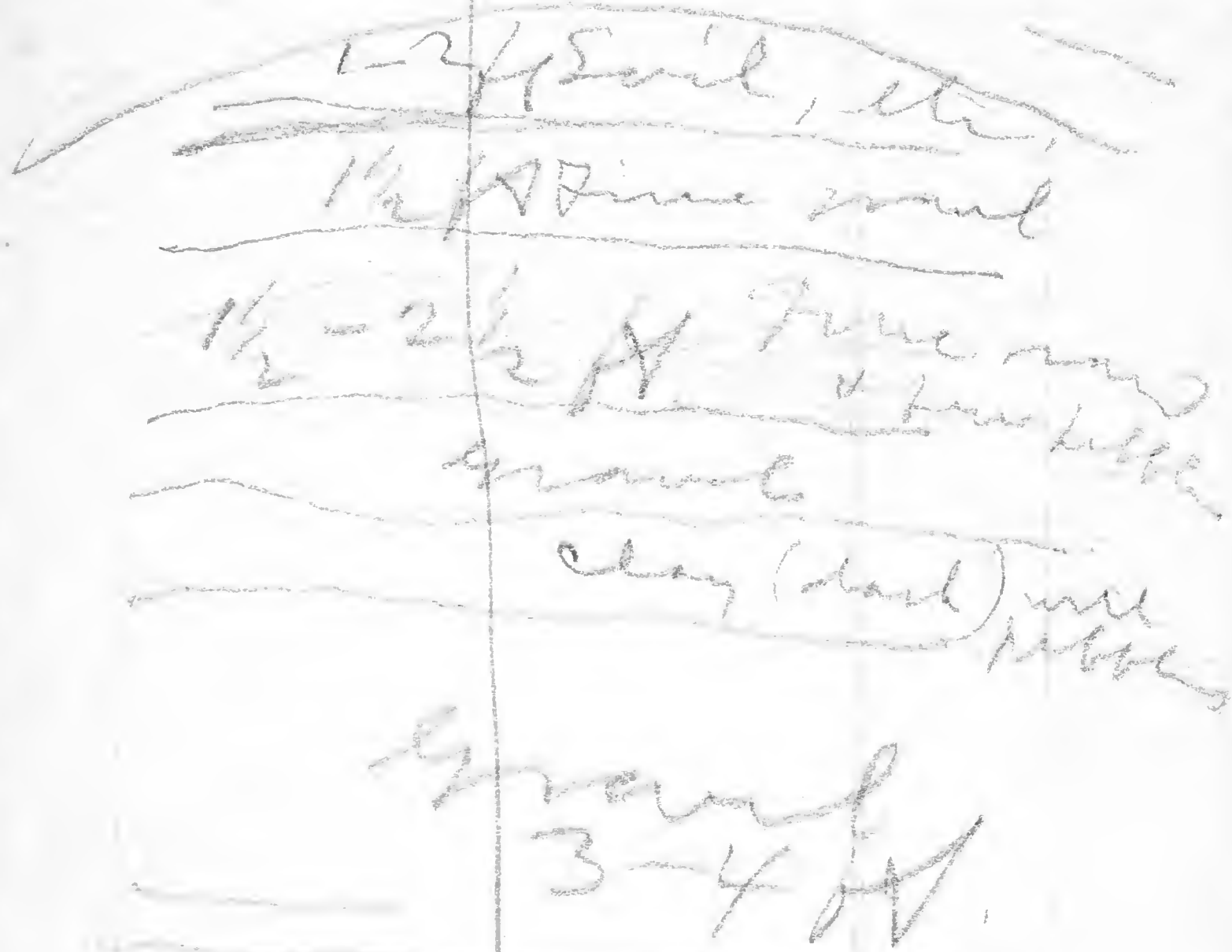
The gravel river
shows 4 steps or
knobs, with
altitude as given
on opposite page.

✓ Photo 5 & C

Many till
road
blue
road
Kiddie

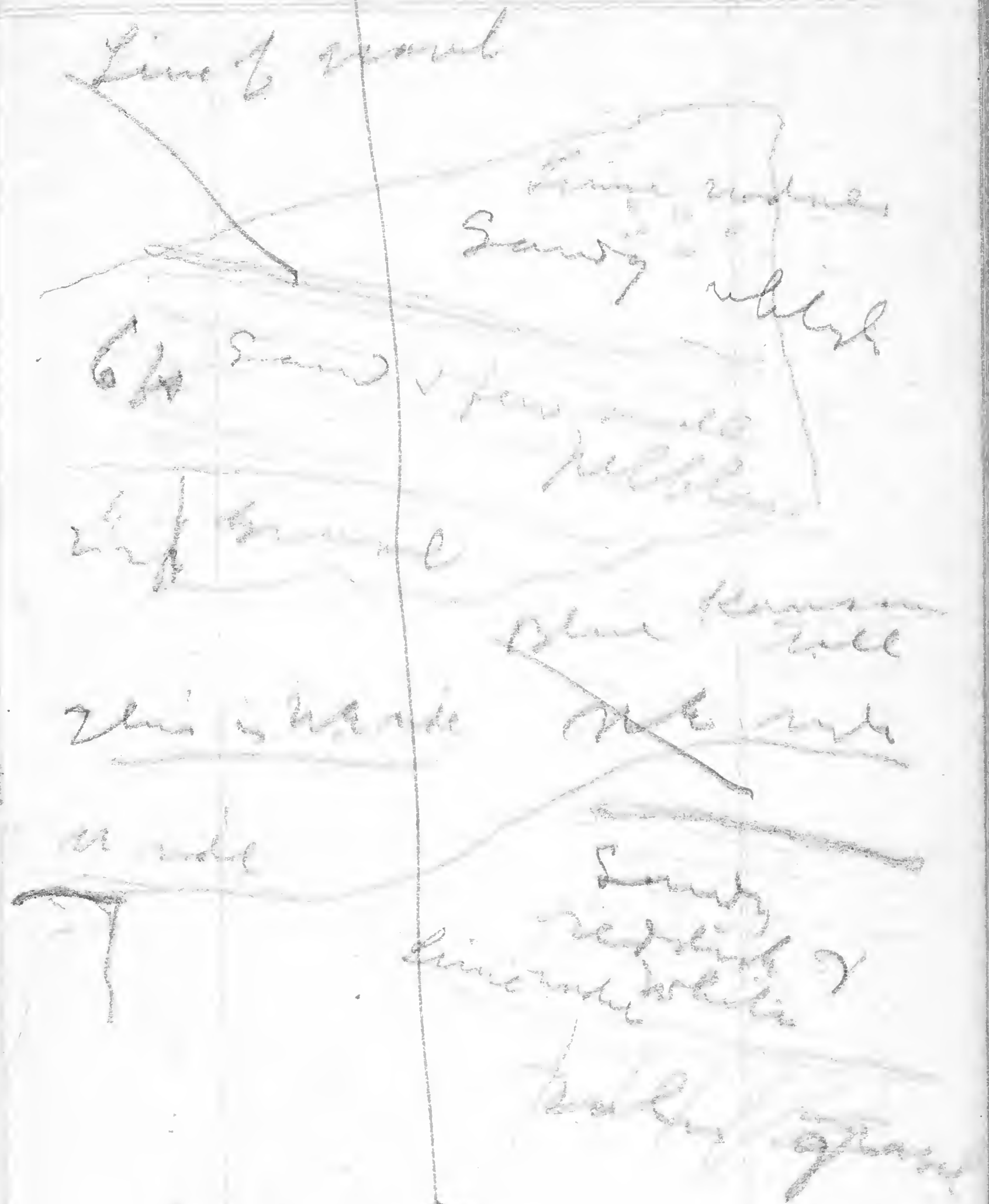


Sand pit 131



This is all
evidently Eocene bed.

Sand pit 131



Evidently very
entire ridge and
of being Eocene
Eocene bed.
There are signs of
animal remains

Cut 127.
 where road runs
 right along
 Little Spring, &
 cut was made
 on side + on E
 side up to 10
 ft. of blue
 joint clay &
 pebbles & pebbles
 boulders, stones.
 This is Kansan!

Cut 126 Great
 pit on bank of
 Little Spring near
 Co. line.

The river here
 full of boulders.
 There are three
 sections to this
 great cut, or
 really three
 distinct cuts.
 I will call

growth from 128, next
 129 & with me 130.

The road here is
 at least 20 ft
 above river &
 at both ends of
 cuts (i.e. at 128 &
 130) it drops a
 little.
 This was cut out
 of bluff.

Cut 125 shows
 fine cross bedding, &
 again shows & gravel
 run mixed.

65 ft. 48 ft. 22 ft. 22 ft.

48 ft. 22 ft. 22 ft.

cur 130

2-6 ft. 1 ft. 1 ft. 1 ft.

coarse red sand

7 to 8 ft.

22 ft.

7 ft. dark streak following line

25 ft. 25 ft.

part thick to right of western front

mostly joint clay

15 ft.

15 ft. 15 ft.

nodules

6 ft. 6 ft.

22 ft.

cur 129

22 ft.

98

with black streaks

a block of sandstone
7 ft. long x 2 ft. thick
(see sample)

Hammer

yellow clay

min. clay
shingles

15 ft

6 ft

coarse sand

sandstone

S. end cut 128

Kanran

Kanran

oxide

2nd 128 ft.

Valley

sandstone

sandstone

1 ft.

Pre-Kanran
8 ft. fine clay

50 ft.

65 ft.

The lower part of
the formation
blends in with
128 sand
into same. It
is only a sand conglomerate
lime nodules (large)
appear in streaks
& bands in the
Kansan joint
clay.

At 15 ft a
band of sandy
mud with
Sphaerium, Planorbis,
Pleurogon, Pterinea
This is at highest
point of road
off cut 128
where it is 25 ft
above base of
above this at 20
appears a bluish
clay & above that

at about 5 ft
higher as a
red sandstone
see samples
top of bluff
is about 70
ft above road
& all to top
is Kansan
joint clay with
a few pebbles
of large round
stones.

At 110 ft
a point with
glacial point
above 128.
See sample

✓✓ Photo 11/212
Looking N. at end
128, 129, 130.

In cut 124
 my shell bar
 is about 12
 ft above road
 5 ft high
 in white
 clay
 which runs
 to road about
 20 to 35 ft.
 Then red much
 & all rest up
 Kansas.
 (about ³⁵ 40 ft)

~~Sep. 10 (Thurs.)~~

Cut ¹³⁹a is 15 ft

deep & on side of hill
where road cuts in on
E. side.

It shows laminae
light yellow brown with
few rounded nodules,
horizontal (i.e. common) red
lines. Fossils few.

The upper nodular layer
is not very distinct here,
but shows in smaller
cuts nearby.

Other smaller similar
cuts appear further
up the slope along
road.

At ¹⁴⁰b, the road passes
over highest (its) part (on
side slope) to valley
cut here (on E. side)
is about 12 ft deep
& like ¹³⁹a. Fossils few

Geo. Peyton
cut 141 - Peyton's
gravel pit

Road = 0

Gravel pit = 8 ft

Top of gravel = 38 ft.

Mixed blue drift gravel

porch, reddish sand etc = 8 ft

Then up sandy stuff
4 or 5 ft

If in the pit
shells, are the
same chunks of
"sandstone" as in
cut 128. Also
bits of conglomerate, etc.
Of the very recent,
Tertiary white sand
below about 6 ft.

Thin in horizontally
stratified & not
cross-bedded like
upper part.

Whole sample of white
sand.

✓ Photo 17 - Pit looking E.

Lined bluish gray (Common?)

Reddish sandy layer

like in Murray bed
just -

Woods

Gravel

Common

white sand

A mixed irregular

layers, much oxidized

below in a band,

with sand, gravel,

blue drift

& white nodules.

all thin in view

sand with fine gravel.

belly of fine gravel.

most of this is sand-in

bands.

6 ft

Gravel

white sand

The regular stratification

109

Down N. end the
white sand is
interrupted at top
with CaCO_3 into
a rather hard layer
a few inches thick
(shades down into
lower zone)
The soft ^{white} nodules of CaCO_3
are found in both
sand & upper
hard much.

142

Cut d. river 16-~~75~~
ft above road here
(on bottom) just
along river bank.
The clay is rather
heavy, goes to a
dark brown, & shows
blue streaks where
weathered hematite

a few larger
nodules also.

The brachiopods are large;

Polygona prof.
Symmetra alt.
Hex. *ovata*

16 ft

Across from a few small

soft crin. nodules

formed along
roads.

about 60 ft. long
looking S.W.

about 6-9 ft. above
base of Pisgah
of clay on top
plains.

This is a peculiar
flat-topped ridge
✓ I found 2 pebbles
near top. As
clay fragments
were on surface
it is probable
they came from
higher up.

143

Cut 2 is about 6
ft. deep & runs
up hill to NW.
The base reads 45 ft
above bottom.

It is a sandy light yellow,
with few round nodules
(upper part small
rounded nodules)
& a few shells.

144

Cut 3 shows yellow loam
7 ft. base as before.

Run down hill to west

145

Cut 4 is a similar one
slumped, 9 ft deep,
& is longer. It runs
into hill west.

Note plateau near
Pisgah, & also on
off side of river.
This is more or less
rolling, & low, even.

(At Pisgah, on E. side
the ridge shows east dip,
etc.)

146

Cut 5 is a thin layer
on gentle up slope
to NW. It is
yellow loam, about
12 ft exposure.
Saw no fossils
shows laminations

147

Cut a is quite
deep, a cattle way
cut through ridge of
yellow loess.
Did not examine
closely.

148

Cut j - on slope up
to W, shows
about 10 ft of
yellow light loess.
Saw no fossils.
On N. side of road.

149

Cut k is about 10+ ft
deep & like j.

150

Cut l - base reads 155
This is a cut across ^{above bottom} road
sharp ridge & shows
about 25 ft of yellow
loess, streaked below
horizontally with iron,
& with few rounded
nodules, & a few fossils.

Took sample near base
& fossils.

Shows lamination in
weathered parts, toward
base.



151

about 2
130 ft.Cut m

Rend, 130 ft.

This is lower down
 + in vicinity
 It shows on N.
 side several
 ft (6-8) of
 a hard streaked
 layer (see sample)
 + below this is
 shown a blue
 loam with iron
 tubes. No fossils
 seen.

Nodules few.

152

Cut m is lower,

similar, but I
 saw no blue loam
 There large nodules
 found appear in
 road

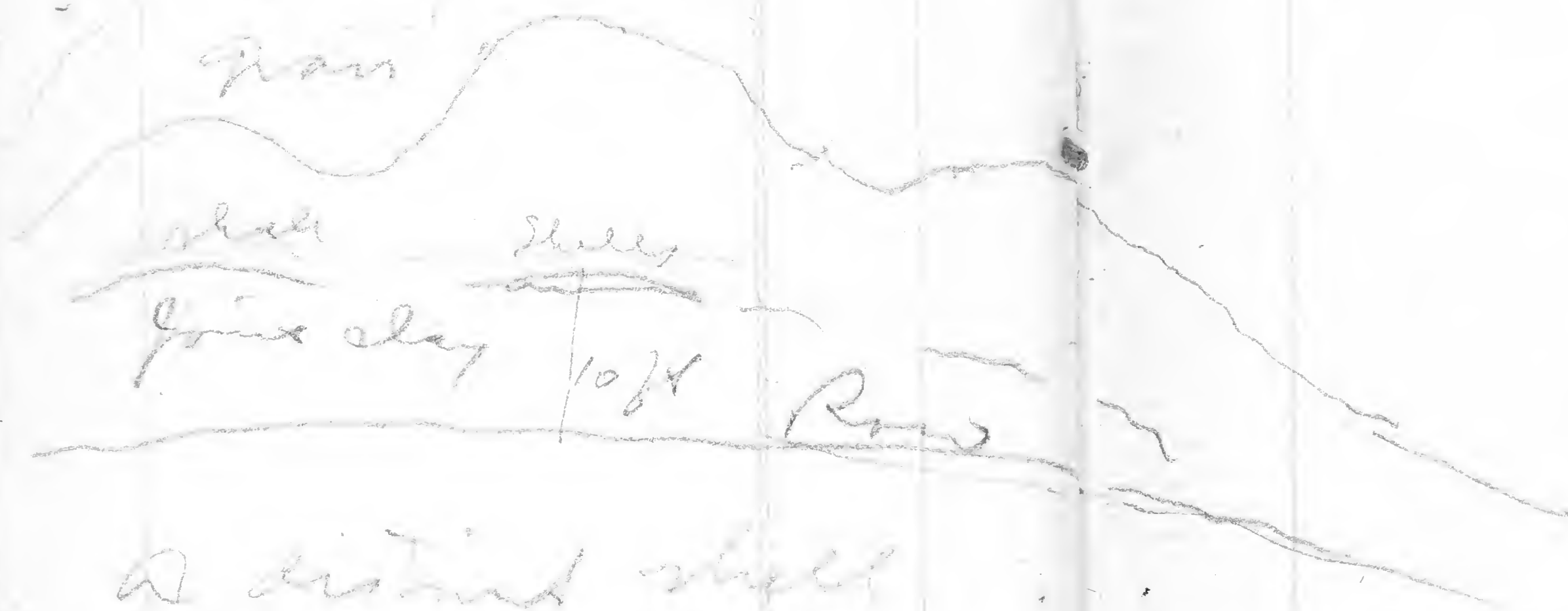
At 105 ft
 first gravel in
 road - washed out

Below this clear
 granules appear, in
 just a little below,
 below that I could
 make out nothing

My old station at
 foot of Murray hill
 was ~~10 ft. higher~~
 about 2 ft
 that foot on S.
 road.

Cut 132 extends up
slope from about
110 ft point to 170
ft at highest pt.
in road, at turn.
(The hill rises to 290
ft.)

The best point, right
at turn, on S. side
shows:



A distinct shell
band appears from
6 to 12 ft above
road & following
contour somewhat
thick very abundant.

A hard brownish
joint clay is found
just below shell
layer. Line
quite sharp.
(Lowland)

cut 133 - end
 of ridge - sharp
 25 ft. high
 Base reads 170
 top " 195

Few fossils
 yellow loess -
 shells below only &
 some a little
 harder.

Top of Murray hill
 reads 295 ft.
 about correct.

The cuts begin
 132 then no
 hard point & gradually
 no loess until
 2 at end, when
 yellow loess
 shows again &
 makes up cut



Cut 134 run
down hill E.
down 8 ft of
loam & a few
shells - then
in hard loam
like in hull
larger
nodules down
3-5 ft.

Cut 135 is
similar, but 10-
12 ft. (rather deep)
Runs down hill E.

School house which
is just a little
below cut 135
reads 130

Cut 136 - a
small cut
6-7 ft
Similar
Saw a few
fragments of
shells

A few small
shells only -
only a few
2nd school (near 9)
reads 50 ft
on bridge

Note altar line
at foot of main
hill

The road from
Murray's hill ^{East}
slopes down to
S. of E., the
drainage being
toward the Soldier

See also my elevation.

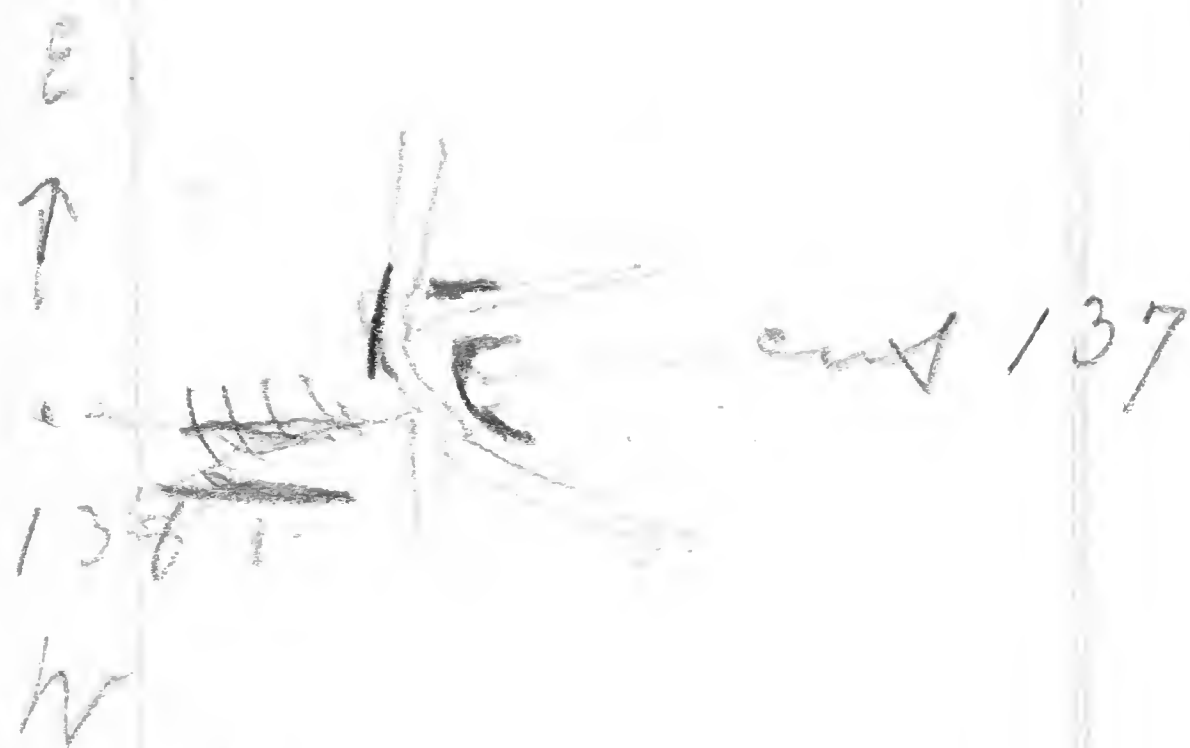
Letter of Mr. Geo.
Peyton, owner of
sand pit, & running
cement works at
Pisgah.
Gave me bones - there
were found in gravel
above white sand.
The elephant's
tooth was found
in gravel below
white sand.

So was mentioned
wrt to Calvin

Mr. Peyton says
he finds a dark blue
clay under sand &
gravel.

will save bones
& teeth.

Cut 137 bank
about 12 ft high
on SW side (but

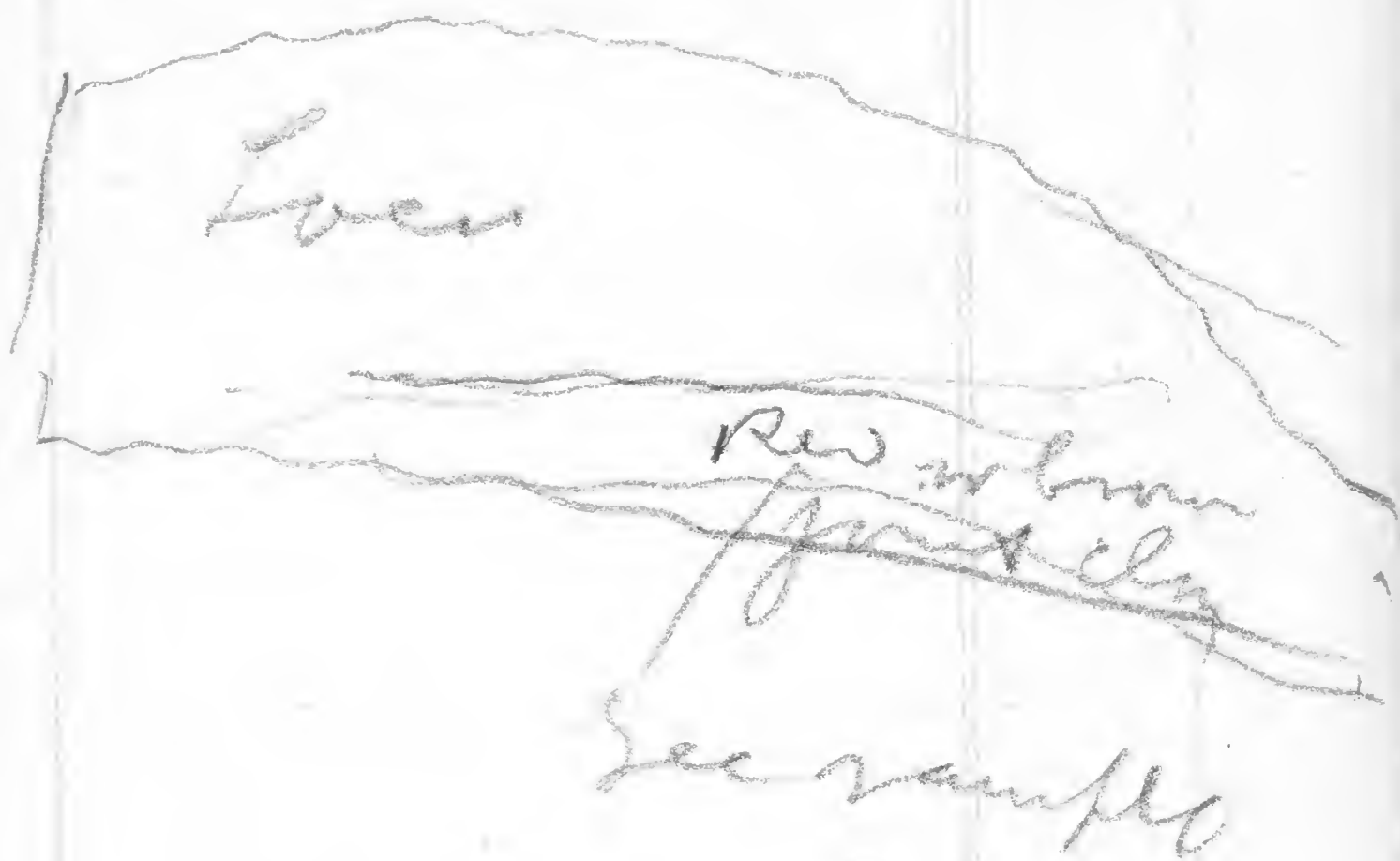


Took sample.
Soft yellow loam
few bones
few found

Looking E - it seems
to be very soft,
with patches of
timber. See cut 138

Cut 138 is at foot
of hill - exposed
show red sand clay
above & gravelly
drift below.

On W. side
of sec. part



Two of the main
ridges E. shore
intersects

Gravel shows that
part of hill is now
bottom road 30 ft.
more of cut 139
is about 20 ft
higher.

✓ Photo 18 Peyton's
pit P.M.

Found Mammals along
roadside

Cut 153 is on

slope up - from bottom
to cross road.

Shows but little, -
laminate yellow
loam - , mostly
overgrown.

6-7 ft deep

Cut 154 slopes down
S. It is a rather

compact yellow
loam. Some fragments
of shells - Rodent
layers distinct

Cut 155 slopes up
S. Cut 6-7 ft deep

Rodent layers fairly
distinct

Similar to 154

Cut 156 is similar,
on slope up to S.
just at end of N. section
of road.

The lake, McWilliams
Lake, is a shallow
body of water -
part of old river
level?

It has a fine new
mound around it

Cut 157 on N. side
of road, & only
about 40 ft
above creek valley
shows about 12
ft. of yellow sandstone
lower with few
rounded nodules
& a few fossils

In this vicinity
some of best fossils (fish)
have been collected.

The uppermost
nodular layer shows
in many places
along road.

The north stretch of
road along sec. 19 & 30
81-43 is very rough,
as far E & W & N, S,
as I could see.
The road is very rough,
& has quite a number
of small cuts showing
yellow loess. The
upper nodular layer below
the lower, when shown,
being yellow with few
rounded nodules.

Toward base of last hill
going N., before turning E.,
quite a bit of gravel
shows in road.

Only one, high up, showed
fragment of *Strophomena*
(this sp. is common in upper loess)

✓ Photo 19

Photography in
see 19-43-81

Cut 158 + Cut 159

are in N. part

see 19-81-43

They show under-
layers + yellow
loam with few
round nodules

Some top fossils

No 158 is partly

lumber

No. 159 shows

perhaps 8 or 9 ft

of loam

Cut 160 is in

plain view - a

road cut

Did not go 4

ft. but

evidently yellow

loam

I notice that in
this part of the
country, ^{about} all the
tops of ridges are
yellow loam, covered
with prairie plants.
They don't attempt
to cultivate them
as a rule, never the
first E. of this
crossroad the
valley ends in
hills, & some of
these show cat-cliffs,
as do most of
the very high hills
in this part, -
but especially
where a valley
heads E or N.E.
Catcliffs also appear
where a ridge
juts out sharply
into valleys -
especially E + W or
N.E. + S.W. valleys.

Cut steps are only
on very steep hills,

Cut 161 is about 9
ft deep, across
end of ridge over
which road passes
(not high at this
point). It shows
light yellow loam
with red horizontal
streaks, & few
rounded nodules.
Saw no fossils.

On 2nd cut S. of
my town to S,
a little bluish
loam shows
in road.
Rest of loam yellow
with nodules.
Layer prominent
- yellow loam

Moore compact.
Blue loam shows
some iron tubes

Cut 162 is a long
low cut (4.6 ft)
on long hill sloping
down to S.
Upper nodular
loam
Lower yellow loam
(see sample)
Few fossils.

Cut 163 on steep
slope down (to S)
About 8 ft deep
Nodular loam
Below yellow
loam with rounded
nodules. Saw
no fossils.

Cut 164 is
mostly on W
side - about

18 ft deep, much
overgrown, but
as far as I could
see (even in road)
only laminated
yellow loess with
rounded nodules
↓ nodular layer
above
a long cut on
steep hill rising
to S

Cpx 165 on
small slope down
(to S) as far
as I could make
out = same

Several cuts, not
numbered (too dark)
were seen on
way to Magnolia

Sep. 11 - (Friday)

Picked up fresh shells
in high bar oak grove
just S. of first turn
from Magnolia to
New Valley, at
Magnolia.

also Indian pits.
This grove is up
near top of high
hunting in which
Magnolia is
located.

Cut 166

Found great gully
S.W. of Carter school.
It is probably 40 ft
deep & 50 to 75
wide, with
almost vertical
walls.

The upper half
as far as I could
make out, consists

of a blue fossilifer
loam?

which may be
reworked blue
loam. It is
mottled, with red
streaks & irregular
cloudings & conchoidal
bits & a few small
layers of chert
pieces, & one place
where ash (?)

This changes
abruptly to
a darker ^{more fine} ~~more fine~~
stuff below
(see sample.)

The ash layer
was about 2 ft
above base of
blue loam.

The darker loam
below also has
fragments of
chert.

At base of bank
a blue (very dark)
mud is shown.
It turns brown where
exposed to air, - or
~~this~~ is the brown
stuff sawn
from above.

This seems to
extend up about
6-8 ft from base.
The walls of
canyon show
stratification
in upper part,
as if by water.

This deep gully runs
back at least $\frac{1}{2}$ mi
above 166.

Below the bridge
the gully becomes
shallow & smaller
with more slumped
sides. Runs as

To bluffs,

Cut 167 is on the
side of road, on a
slight slope up to
west. 5 ft deep.
The shales are mostly
from blending of
upper nodular layer
& lower yellow light
red shales below.
Nodules are irregular.

just beyond (w.)
this there is
another similar
low cut. I could
also see a few
oblique in this
as I passed.

Cut 168 at outlet,
is on the side &
shows about 12
ft. of ordinary
yellow light
brownish loess.
See shales,
Nodules as before.

The gully runs out
even into Wisconsin
flats. In its
lower course it
shows gravel.

Cut 169 is a big
steep cut of yellow
loess in a cat-hill
hill.

Cut 170 a similar
steep cut.

At Calhoun morning
 from a wind

✓

Photo 20

N¹/₂ sec. 31

Choppy lower
 bluffs - Looking

N.

Sep. 12 (Sat)

Spent day on hill
 Mr. Giddings helped.

They was hot & dry,
 with a pretty steady
 breeze on the point.

1 & 3, but only
 gusts, etc. most of
 the time at other
 points.

The station 2
 seems to be shielded
 hot & dry & dust is
 abundant.

Sta. 2 is so near
 the border that it
 has the border
 characteristics in
 some part.

The vegetation on the
 hills is showing effect
 of drought. The leaves
 (especially on the side of trees)
 are covered of brown
 yellow. The grass

is brown & so dry
that walking is
very hard.

The xerophytes are
brown & showing the
following being at
their best:

Solidago rigida
Aster oliganthus
" *serotinus*

Solidago arguta - a little
old.

Grindelia squarrosa

Chrysopsis villosa

Reichardia

Psatira punctata

Helianthus rigidus

Sep. 13 (Sun)

Went to Omaha Area

Co. Bluff Area

VV Photo 1+2 Sta. 1

Looking W. of R.

VV Looking W.
Photos 3+4 Sta. 2

Quadrant

VV Photos 5+6 from high hill

Sta. 1

Sta. 2

Quadrant

Looking W. of R.

Photos 7+8

Sta. 2

Sta. 3

Looking W. of R.
down embankment of ridge

The slopes & woods at my station at Co. Bluff have changed quite as much as those at Maunabo Valley. The woods at 3 & 4 are very dry, dusty, hot & they lost about all their freshness. The prairie slopes are brown, much of the grass is dead & many flowers lost.

of Heron.

still well-flowered:

Melilotus alba

Linum punctatum

" *perenne*

Helianthus v. v. v.

Schizanthus v. v. v.

"

(*memorata*)
(*scutellaria*)

"

anagallis

Artemisia canina

"

oblongifolia

"

serotina

"

lupinus

Sept. 14 - Mon

The station at
Worlworth Ave & 6th
is 20 ft
below top of Wye
S. West.

This river flows
N.E. & the
slope on which
the station is
located is well
exposed to S.E.
winds. (See map)
The hill near
here only a few
feet left. & is
covered with
blue grass, etc.

Photos 1, 2 & 3 -
Hill view from
cor. of Harmon
& 6th looking
west S.

The station is
exactly opposite S.

side walk on Worlworth
& is additionally
exposed to easterly
winds because it
is near edge of
bank & opp. open
street



a row oak 20 ft
S.E. on edge of
bank shadows
station a little
while in morning
A row oak 15 ft
N. of W. does not
reach station

Another low bank
 15 ft. N. down
 slope, & another
 on edge of bank
 18 ft. N. of E.
 neither of them
 shows strata,
 the strata being
 entirely open to
 S. & SW & to
 E. of S.

✓ Phot 4 - (Hazy)
 Looking S.E. along
 Slope -

Missouri
 river

✓ Part
 cut 5 & 6
 Looking N. up slope.

True	Φ strata	True
True	True	

On square

The trees scatter
 about on slope are
 Burros - about 19
 Walnut 8
 Pecan 7
 Red elm 1
 Red oak 1

The great cut (or
 series of cuts) here
 shows red dirt
 joint clay in
 lower half of
 same, - so that
 lower cannot be
 over 25 ft
 at deepest pt.
 Did I call this
 red lower before?

153

Baron, notes 154

Brush 150

74th St 35

at bridge - W side 25

Bridge 35

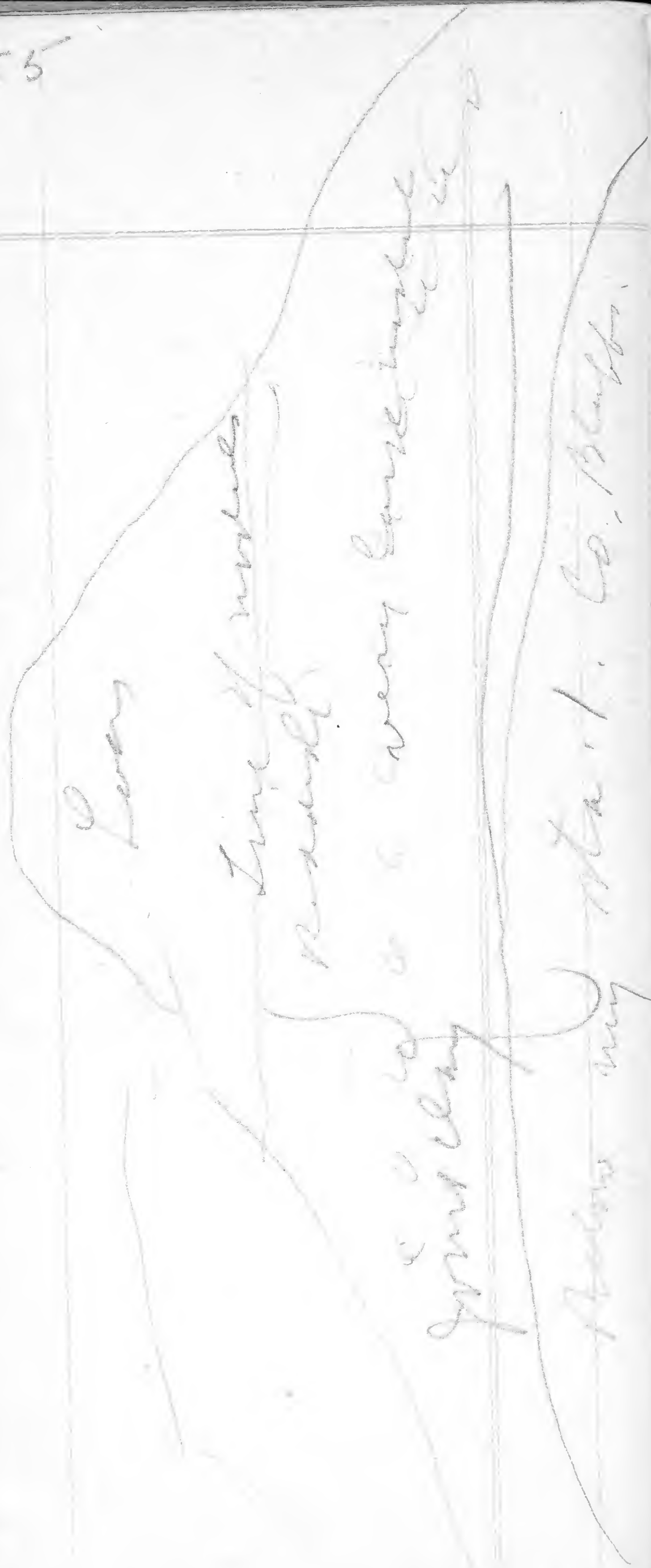
Lowest place E side -2

Co. W. depot -1

Brooklyn Main (at turn) 12

Sta 1 145

" 2 218



Sept. 15 - Tues.
Munni Valley

cut 39 is yellow
loam - 18 or 20 ft
deep - W. side
(this has been as it
see my old picture)
Nodules & nodular
layer as before.
The W. side is mostly even
cut 40 is a short
cut 6-8 ft deep,
yellow loam
with few bones &
nodules as before

cut 41. Being removed



W. side cut 41.

Fornies

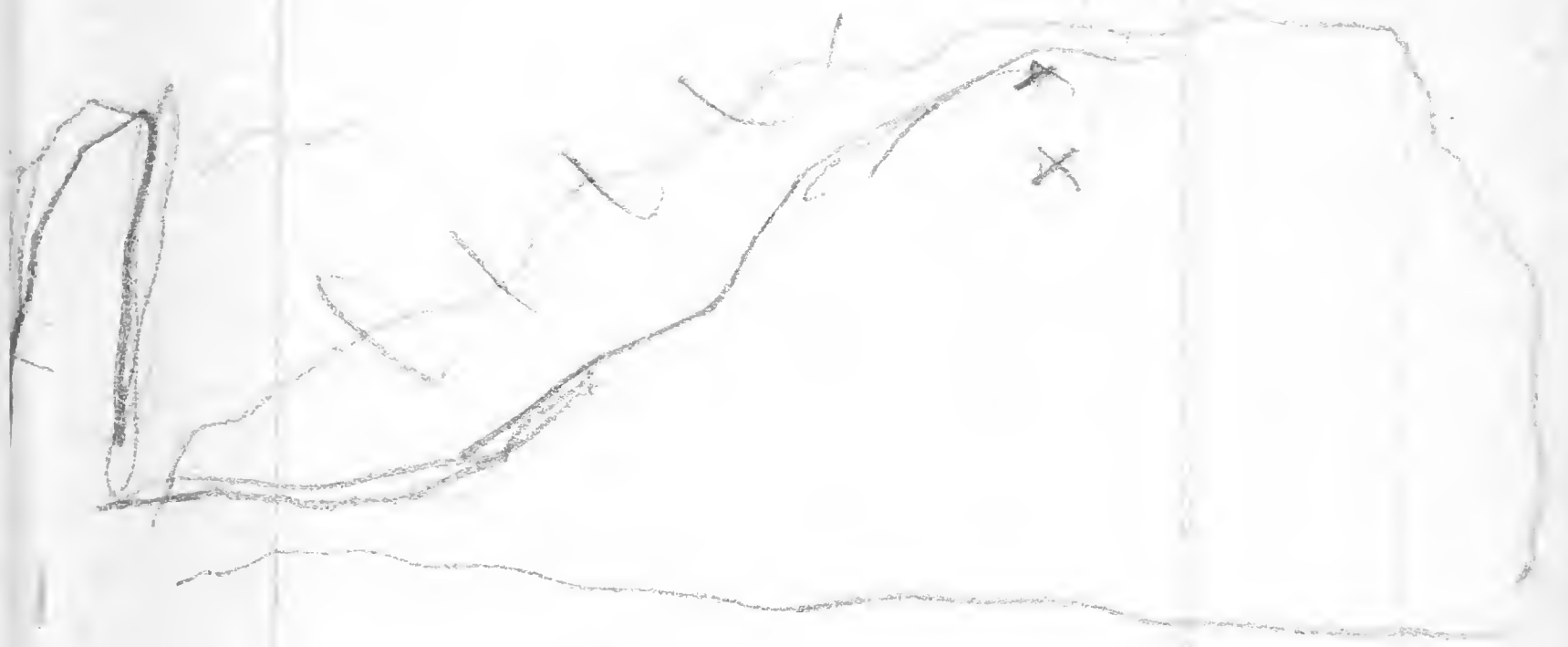
Exposition 3.5 ft.

yellow loam, clearly laminated
below, few nodules
fossils few, small

Sample X

cut 41 3 mile

Cut 42 is more
irregular, being
numerous. Samples



Looking E.
Yellow loam, well
laminated below.
Few small nodules,
few fossils, scattered.
No sample of
abundant fossiliferous
layer.
Also loam just
below is upper
part of loam.
This and will
soon disappear.

159

Sta. 2 runs 180
Top of hill - across

205

Station 3 runs 175

John Paper
Mo. Valley

✓ Photos 7 & 8. Sta.

Cut 68 in new

Paper 5 line

(some distance N)

✓ shows about

12 ft of yellow

laminated loam,

a nodular layer

with few nodules

✓ some nodules

very common.

Fossils very good.

Some oblique.

Top of hill at same run
again runs 205

In P.M. rode back to

axis pit.

(Sec. 8 - La Grange 160)
G. H. Longman
(Farming Inst.)

✓ Photos 9 & 10. Looking
S.E. into Coxs pit;
with stream

Ramona

Grand

Grand

✓ Photos 11 & 12. Looking

into pit - S.E.

with that stream

✓ Photos 13 & 14.

Close range view

Look

Sand

Gravel

Dark

The lower dark gravel is most irregular & cloudy more or less with the

Base 0

Gravel about 14 ft

Sand up to 35 ft

Kansas dips up to 45 ft

Upper shale

The Kansas is strongly oxidized in upper part

The gravel in lower layers is water worn rounded, & there are some larger boulders (a few) most of the lower ones being Sioux Quartzite

The Cox's pit - pit below the layer (6 in) was a layer of white sand, gravel in 4 or 5 ft

The big bone which we dug here, & the dam were from black gravel

Sep. 16 - Wed.

Packed Am.
PM. - went N.

Cut 69. This in its
N. part is a high
cut, mostly of yellow
loam, but showing
at base, near schoolhouse
about 18 ft. of
reddish joint clay



Above the drift there is evidently the

loam, for many fossils are in upward of loam. in
drift face, & black loam with laminae are

visible. Took
sample of joint clay
about 7 ft. from
top of grumbly layer
(2 ft above wall)
The pebbly drift
appears only at
W. end of cut.
all that shows
on side of slope is
reddish joint clay
with iron streaks &
white limy line
& clumping (efflorescence)

At reading 68 ft. ^{at X} - which
is at base of big and
sloping down from
part which I
marked cut 67 ~~to~~
to cut 69.

The bank here is
probably over 30
ft. high, but its
very base the lower

appears gray, -
looks almost as if
it ought to be blue
green. (See sample)
a few scattered
fossils appear
in this upper part.
It shows in lowest
part a few iron tubes
brown thin distinct
one or two have shown
very many plants.

Cut 68 shows a fairly
clear blue lens with
a few iron tubes
at very base on W.
side, & on flat in this
part. This lens is very
fossiliferous (see blue)

Sample of blue clay a

" 2 ft. above B
" near upper red C
" 6 ft " D

This blue lens blue
(when wet) with a redder

U. note

cut 66

Blackish, blue & blue

White, yellow

but still Blue-like loam
for 4 or 5 ft.

above this material
is redder for at least
2 or 3 ft. & then
blends up with yellow
loam.

I could see no drift
or red granitic in
fact. Found one a little
out on the S. side made
of small boulders leading
to dump & its top 8 or
9 ft. Below base of
cut 66.) There is
distinct Hanson (small
pebbles) & above is
a not well defined
red band.

As this shows down to
W. it is probably that
there is cut 60 is being
near Hanson & red
granite. Hanson being
the dominant, upper cut 66 d
the lower the longest cut

104 horizontal streaks
The upper yellow loam shows
some small nodules, etc. 5 in.

Box 5

- | | |
|-----|----------------|
| 1 | sample 7 |
| 2 | upper |
| 3 | yellow loam |
| 4 | about 8 ft |
| 5 | 10 ft from |
| 6 | top of sec. |
| 7 | end of cut |
| 8 | (rather low) |
| 9 | There is |
| 10 | quite a |
| 13 | distinct |
| 14 | shell band |
| 15 | in lower |
| 16 | part of |
| 17 | subsoil yellow |
| 18. | seen on |

E. side.

Nodules of
iron oxides in the
blue, iron ore

cut 70 is just at

Point S. of entrance
to Snyglers Hill

It shows fine gravel
Kansan for about 7
20 ft above road
(I saw 60 ft road, which
is about 25 ft high)

This has whitish
nodules, & contains
pebbles

Above that is
a mass of rather
thin (2-3 ft) red
granular pebbly
loam. On this

very thin
sparsely (see spec)
is a blue fossiliferous
loam with large
iron ore nodules

about 6 ft above
above that overgrown

The black & white layers
alternate & thin, sometimes
a few inches, or less, thick

Sep 4 - 1908

At Mrs. Valley
Plates ^{61.80}

At Logan

Lunch, ⁴⁰ Train ²⁵ .95

At Mrs. Valley, lunch .50

Sep. 5 - 1908

Handled Buckley lunch ²⁵ .45

Fare to Co. Buff. - Omaha .16

Sep. 6, 1908

Compare .55

Trunk - Co. Buff. .25

Fare to Mrs. Valley .43

Sep. 7, 1908

Plates 1.00

Sep. 8, 1908

Marysville - lunch ¹⁵ ²⁵ .50

Sep. 9 - '08

Here Line on ^{1.50} ^{1.00} 2.50

Lunch - farm & feed .85

Sep. 10 - 1908

Pigrah - Hotel ⁷⁵ ⁸⁵ 1.60

Lunch ²⁵ ³⁵ .60

Sep. 11 - 1908

Marysville - Hotel ⁷⁵ ^{1.00} 1.75

(Mrs. Valley - Plates ^{not includ} .50)

Sep. 12 - Plates

Lunch ³⁰ ¹⁵ .40

Sep. 13 -

Fare to Co. Buff. Omaha .68

Carfare .40

The black & white

edges in yellow

on 2. base of table

about 7 ft. &

also several rods

Sep. 15 - Fare to Mrs. Valley .68

Marble ¹⁰ Boxes ²⁰ .30

Dray ²⁵ ¹⁰ .35

Sep. 16 Papers ²⁰ ⁵ ⁵ .30

Hotel .90

Fare to Cedar Rapids 4.89

Pike .45

Crown Ration lunch ³⁵ .35

Dray ²⁵ ²⁵ .50

Fare to Iowa City .65

173

Big cut down

V. 11 (12 mi) up

steep hill down

Deep cut

Road near 1/2

Road W.

1 Brown Estuary
pass up hill

3 cuts

2 1/2 mi / 1/2 mi

2 mi / 1/2 mi

Road 1/2 mi

Road W

Thurs 11 June 7

Fri 1111 "

Sat 11111 "

7

16

15

38

4

Geo. Peyton

Pisgah

Ja

Last cut = 152

30 m 2/10

cut up hill

after 1/2 mi

to E

Road 1/2

